

## AMENDMENTS TO THE CLAIMS

1. (Currently amended) ~~An etching~~ A method of fabricating a diffractive optical element (DOE), the method comprising reactive ion etching a pattern in for a ZnSe polycrystalline substrate, wherein reactive ion etching is applied by means of only chlorine-based gas which does not include a hydrocarbon group.

2. (Currently amended) A method of fabricating a Diffractive Optical Element (DOE), the method comprising reactive ion etching a pattern in for a ZnSe polycrystalline substrate, wherein reactive ion etching is applied by mixing:  
with a mixture of a chlorine-based gas which does not include a hydrocarbon group; and

inert gas or gas which does not react to with ZnSe.

3. (Currently amended) ~~An etching~~ The method for a ZnSe polycrystalline substrate as set forth in according to Claim 2, wherein  
said inert gas includes Ar.

4. (Currently amended) ~~The An etching~~ The method according to Claim 1  
Claims 1 through 3, for a ZnSe polycrystalline substrate as set forth in wherein  
said chlorine-based gas includes  $\text{BCl}_3$  gas.

5. (Currently amended) ~~The An etching~~ The method for a ZnSe polycrystalline substrate as set forth in according to Claim 1 Claims 1 through 3, wherein comprising

~~said~~ reactive ion etching ~~is performed~~ at a gas pressure of 0.5Pa through 1Pa.

6. (Currently amended) ~~The An etching method for a ZnSe polycrystalline substrate as set forth in~~ according to Claim 1 Claims 1 through 3, wherein comprising activating

the gas ~~is activated~~ by means of a radio frequency.

7. (New) The method according to Claim 2, wherein  
said chlorine-based gas includes  $\text{BCl}_3$  gas.

8. (New) The method according to Claim 3, wherein  
said chlorine-based gas includes  $\text{BCl}_3$  gas.

9. (New) The method according to Claim 2 comprising  
~~said~~ reactive ion etching at a gas pressure of 0.5Pa through 1Pa.

10. (New) The method according to Claim 3 comprising  
reactive ion etching at a gas pressure of 0.5Pa through 1Pa.

11. (New) The method according to Claim 2 comprising activating  
the gas by means of a radio frequency.

12. (New) The method according to Claim 3 comprising activating

the gas by means of a radio frequency.